In the Claims:

1. (cancelled) without prejudice.

2. (currently amended) Method according to claim ~~1~~ 13, wherein the stoichiometric rate is in the range between 45 and 90.

3. (currently amended) Method according to claim ~~1~~ 13, wherein the air flow direction within said fuel cell system is alternatingly reversed after ~~certain~~ periodic time spans.

4. (cancelled) without prejudice.

5. (currently amended) Fuel cell system according to claim ~~4~~ 13, wherein the air penetrating ducts are formed in an air conducting layer which is adjacent and in contact to the cathode layer ~~the latter one having~~ which allows diffusion ~~properties~~.

6. (currently amended) Fuel cell system according to claim ~~4~~ 13, wherein the air penetrating ducts consist of channels formed in the cathode layer or in the air conducting layer and extending along the air flow path.

7. (currently amended) ~~Fuel cell system according to claim 6,~~ A method operating a fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the air supplied by the air supply is introduced by pressure into the fuel cell system, passes along the cathode layer and then leaves the fuel cell system, and is

used for both oxidant and coolant, the air is introduced into the fuel cell system with a rate resulting in a stoichiometric rate in the range between 25 and 140, the fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the cathode layer(s) or a part of the cathode layers is equipped with air penetrating ducts allowing an air flow parallel to the membrane at a flow rate resulting in the stoichiometric rate in the range between 25 and 140, wherein the air penetrating ducts comprise channels formed in the cathode layer or in the air conducting layer and extending along the air flow path, wherein in the flow direction~~, the total~~ area of the channel section ~~area~~ decreases.

8. (currently amended) Fuel cell system according to claim ~~4~~ 13, wherein it comprises a fuel cell stack which has a geometrical form of a parallelepiped with a rectangular traverse section wherein the air penetrating ducts of each single cell are directed parallel to the short edge of the rectangle.

9. (currently amended) Fuel cell system according to claim ~~4~~ 13, wherein it comprises a fuel cell stack which has a substantially cylindrical geometrical form ~~close to a cylinder~~, and has individual cells each comprising an active area in the form of a circular ring, the circular rings in the stack delimiting a central tube within the stack from which tube the air penetrating ducts spread and direct the air flow radially

through the individual cells.

10. (previously presented) Fuel cell system according to claim 9, wherein the air flow is generated by one or two blowers located at one or two endplates of the fuel cell stack.

11. (currently amended) ~~Fuel cell system according to claim 4, wherein it comprises~~ A method operating a fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the air supplied by the air supply is introduced by pressure into the fuel cell system, passes along the cathode layer and then leaves the fuel cell system, and is used for both oxidant and coolant, the air is introduced into the fuel cell system with a rate resulting in a stoichiometric rate in the range between 25 and 140, the fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the cathode layer(s) or a part of the cathode layers is equipped with air penetrating ducts allowing an air flow parallel to the membrane at a flow rate resulting in the stoichiometric rate in the range between 25 and 140, further comprising a fuel cell stack with gas separator plates between the single fuel cells, and wherein the material of said gas separator plates has a ratio heat conductivity parallel to the membrane to density of > 0.04 W

$m^2/(kg\ K)$.

12. (currently amended) Fuel cell system according to claim ~~11~~ 13, wherein the material of the gas separator plates is a foil made of expanded graphite.

13. (currently amended) ~~Fuel cell system according to claim 4,~~ A method operating a fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the air supplied by the air supply is introduced by pressure into the fuel cell system, passes along the cathode layer and then leaves the fuel cell system, and is used for both oxidant and coolant, the air is introduced into the fuel cell system with a rate resulting in a stoichiometric rate in the range between 25 and 140, the fuel cell system comprising at least one active membrane sandwiched between an anode layer and a cathode layer and comprising a catalyst, and a fuel supply having access to the anode layer and an air supply having access to the cathode layer, wherein the cathode layer(s) or a part of the cathode layers is equipped with air penetrating ducts allowing an air flow parallel to the membrane at a flow rate resulting in the stoichiometric rate in the range between 25 and 140, wherein the single fuel cell at its cathode side comprises a diffusion structure wherein an air filter is contained.

14. (currently amended) Fuel cell system according to claim 13, wherein said air filter is made of a layer sheet

material which is ~~strongly~~ hydrophobic and ~~comprises small pore sizes~~ porous.

15. (currently amended) Fuel cell system according to claim 14, wherein the material of the air filter is a porous stretched PTFE foil ~~filled among others with~~ comprising an electrically conductive material.

16. (previously presented) Fuel cell system according to claim 15, wherein the PTFE foil is further compressed and impregnated with a PTFE detergent suspension.